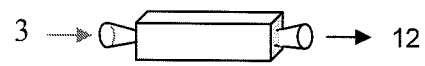
**Strand 3: Patterns, Algebra, and Functions**
**Concept 2: Functions and Relationships**

Describe and model functions and their relationships.

In Grade 3, students build on the ideas of functions from second grade. Students focus on the relationship between two quantities and how different representations are related.

| ***Performance Objectives*** | ***Process Integration*** | ***Explanations and Examples*** |
|---|---|---|
| *Students are expected to:* | | |
| PO 1. Recognize and describe a relationship between two quantities, given by a chart, table or graph, in which the quantities change proportionally, using words, pictures, or expressions.<br><br>Connections: M03-S1C1-01, M03-S1C2-01, M03-S1C2-02, M03-S1C2-04, M03-S1C3-01, M03-S3C1-01, M03-S3C1-02, M03-S3C2-02, M03-S4C1-01 | M03-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem.<br><br>M03-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.<br><br>M03-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. | The relationship can be given by a table, model, or input/output (function) machine.<br><br>Examples:<br>• What rule is shown by the input/output machine?<br>  <br>In / Out<br>1 / 4<br>2 / 8<br>3 / 12 |
| PO 2. Translate between the different representations of whole number relationships, including symbolic, numerical, verbal, or pictorial.<br><br>Connections: M03-S3C2-01, M03-S3C3-02, M03-S4C1-01, SC03-S1C2-05, SC03-S1C3-02, SS03-S4C1-05 | M03-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.<br><br>M03-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. | Students can represent whole number functions using pictures, numbers, symbols, and words.<br>• Pictures<br> <br>Continued on next page |

The bulleted items within a performance objective indicate the specific content to be taught.

| ***Performance Objectives*** | ***Process Integration*** | ***Explanations and Examples*** |
|---|---|---|
| *Students are expected to:* | | |
| | | • Symbols<br>The number of points equals 5 x n (if n = the number of stars)<br>• Words<br>Each star has 5 points. In order to figure out the total number of points, you multiply the number of stars by 5.<br>• Table |

| Stars | Number of Points |
|---|---|
| 1 | 5 |
| 2 | 10 |
| 3 | 15 |
| 4 | 20 |

The bulleted items within a performance objective indicate the specific content to be taught.